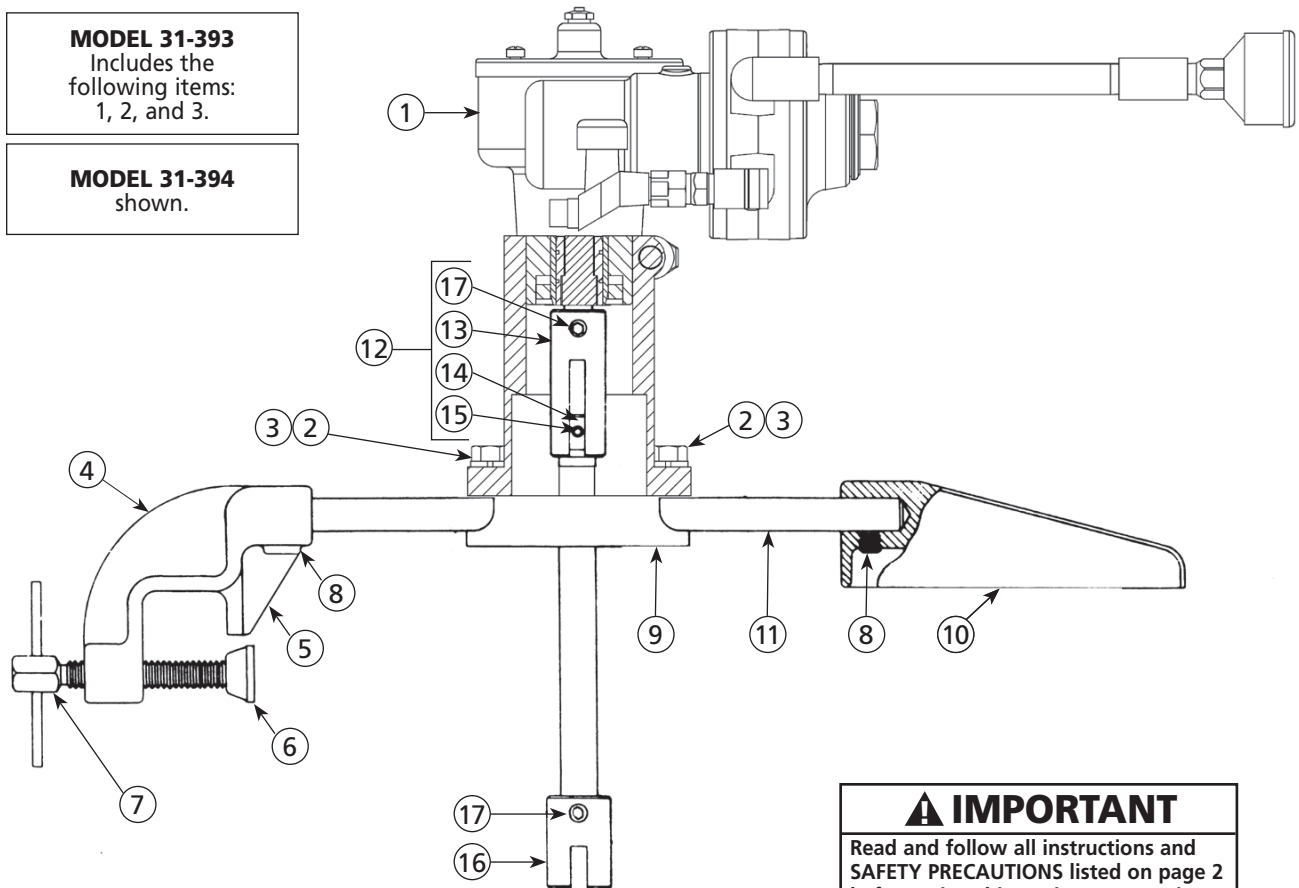




Binks MODELS 31-393 & 31-394 AGITATOR DRIVE UNITS for Agitator Equipped Drum

MODEL 31-393
Includes the following items:
1, 2, and 3.

MODEL 31-394
shown.



▲ IMPORTANT
Read and follow all instructions and SAFETY PRECAUTIONS listed on page 2 before using this equipment. Retain for future reference.

PARTS LIST

When ordering, please specify Part No.

ITEM NO.	PART NO.	DESCRIPTION	QTY.	ITEM NO.	PART NO.	DESCRIPTION	QTY.
1	31-393	AIR MOTOR DRIVE UNIT	1	12•	31-29	SHAFT COUPLING ASSEMBLY.....	1
2	Purchase Locally	LOCK WASHER 3/8 plated.....	2	13	31-28	COUPLING ASSEMBLY	1
3	Purchase Locally	HEX. HD. CAP SCREW, 3/8-16 x 1" long, plated	2	14	31-25	SHAFT.....	1
4*	31-31	CLAMP ASSEMBLY	1	15	83-1211	ROLL PIN	1
5	—	CLAMP.....	1	16	—	COUPLING (check coupling on shaft)	1
6	—	CLAMP BUTTON	1	16a	31-21	COUPLING, 7/16" square.....	—
7	—	CLAMP SCREW.....	1	16b	31-22	COUPLING, 5/8" square	—
8	Purchase Locally	SOCKET HD. SET SCREW, 5/16-18 x 3/8" long, cup point (2 shown)....	4	16c	31-23	COUPLING, 1/2" square.....	—
9	31-35	DRIVE BASE.....	1	16d	31-24	COUPLING, 3/8" slotted.....	—
10	31-33	BRACKET	1	17	20-1076	SOCKET HD. SET SCREW, 5/16-18 x 5/16" long, cup point (2 shown)...	2
11	31-32	AIR MOTOR SUPPORT (1 shown)	2				

*Includes Item Nos. 5, 6 and 7.

•Includes Item Nos. 13, 14, 15 and 17.

In this part sheet, the words **WARNING**, **CAUTION** and **NOTE** are used to emphasize important safety information as follows:

⚠ WARNING
Hazards or unsafe practices which could result in severe personal injury, death or substantial property damage.

⚠ CAUTION
Hazards or unsafe practices which could result in minor personal injury, product or property damage.

NOTE
Important installation, operation or maintenance information.

⚠ WARNING

Read the following warnings before using this equipment.



READ THE MANUAL

Before operating finishing equipment, read and understand all safety, operation and maintenance information provided in the operation manual.



WEAR SAFETY GLASSES

Failure to wear safety glasses with side shields could result in serious eye injury or blindness.



DE-ENERGIZE, DEPRESSURIZE, DISCONNECT AND LOCK OUT ALL POWER SOURCES DURING MAINTENANCE

Failure to De-energize, disconnect and lock out all power supplies before performing equipment maintenance could cause serious injury or death.



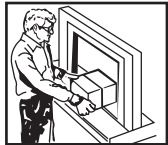
OPERATOR TRAINING

All personnel must be trained before operating finishing equipment.



EQUIPMENT MISUSE HAZARD

Equipment misuse can cause the equipment to rupture, malfunction, or start unexpectedly and result in serious injury.



KEEP EQUIPMENT GUARDS IN PLACE

Do not operate the equipment if the safety devices have been removed.



HIGH PRESSURE CONSIDERATION

High pressure can cause serious injury. Relieve all pressure before servicing. Spray from the spray gun, hose leaks, or ruptured components can inject fluid into your body and cause extremely serious injury.



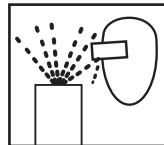
PRESSURE RELIEF PROCEDURE

Always follow the pressure relief procedure in the equipment instruction manual.



ELECTRIC SHOCK/GROUNDING

Improper grounding or sparks can cause a hazardous condition and result in fire, explosion or electric shock and other serious injury.



PROJECTILE HAZARD

You may be injured by venting liquids or gases that are released under pressure, or flying debris.



INSPECT THE EQUIPMENT DAILY

Inspect the equipment for worn or broken parts on a daily basis. Do not operate the equipment if you are uncertain about its condition.



NEVER MODIFY THE EQUIPMENT

Do not modify the equipment unless the manufacturer provides written approval.



FIRE AND EXPLOSION HAZARD

Improper equipment grounding, poor ventilation, open flame or sparks can cause hazardous conditions and result in fire or explosion and serious injury.



KNOW WHERE AND HOW TO SHUT OFF THE EQUIPMENT IN CASE OF AN EMERGENCY



STATIC CHARGE

Fluid may develop a static charge that must be dissipated through proper grounding of the equipment, objects to be sprayed and all other electrically conductive objects in the dispensing area. Improper grounding or sparks can cause a hazardous condition and result in fire, explosion or electric shock and other serious injury.



PROP 65 WARNING

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

IT IS THE RESPONSIBILITY OF THE EMPLOYER TO PROVIDE THIS INFORMATION TO THE OPERATOR OF THE EQUIPMENT.

FOR FURTHER SAFETY INFORMATION REGARDING BINKS AND DEVILBISS EQUIPMENT,
SEE THE GENERAL EQUIPMENT SAFETY BOOKLET (77-5300).

OPERATION AND MAINTENANCE

INSTALLATION

Installation onto Agitator Equipped Drums (refer to page 1 and figure 1, page 5)

1. Align holes on coupling adapter (23) to the mounting holes on the drive base (9). Secure with lock washers (21) and hex head bolts (20).
2. Align the set screw detent on the drive shaft assembly (19) with the set screw (17) in the coupling assembly (13).
3. The inlet for the air supply may require alignment after mounting. This is accomplished by loosening the hex head screw (22) and rotating the gear reducer with air motor (18) to the desired position to connect the air supply. Retighten the hex head screw (22).
4. Connect the air supply to the air motor.

CAUTION
 The gear reducer is shipped with a plastic 1/4 NPT plug to prevent leakage. Make sure the plastic plug on top of the gear reducer has been replaced with the QS-108 pressure relief fitting (Item No. 50, page 7) before operation.

OPERATION

Before operating air motor, lubricate as covered in next section. Open valve to main air line; then slowly open air adjusting valve until agitator turns. To extend air motor life, adjust air pressure setting to run motor at about one revolution per second. The agitator should be run continuously while in use.

PREVENTIVE MAINTENANCE

Air Motor Lubrication

Periodically – Remove air adjusting valve and air strainer

CAUTION
 Failure to properly lubricate the air motor will result in premature motor failure and will void warranty. Lubricate air motor daily by adding 4 or 5 drops of SAE 10 weight oil into air inlet fitting. For convenience, an automatic oiler may be connected to the air inlet.

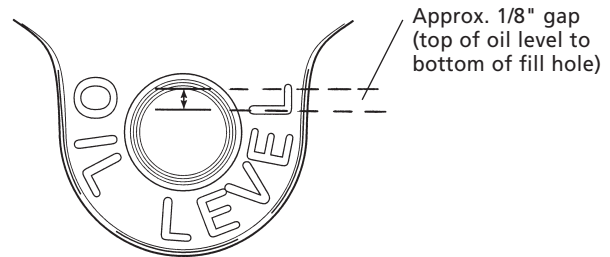
and flush motor with a clean suitable solvent. Remove trapped particles from screen in air inlet and clean air strainer felt.

Air Motor Gear Box Lubrication

Every 2 Days – Remove oil fill plug and check oil level. Proper oil level is indicated on outside of gear box housing. If oil level is low, add 140-weight SAE Gear Oil or a high quality worm gear lubricant. Replace pipe plug and tighten to 20 foot-pounds (27 N-m) of torque.

NOTE

Gear box oil is most easily drained just after motor operation, while oil is still warm.



NOTE

Do not overfill. Overfilling may cause oil to leak out of vent cap on top of gear box.

After first 250 hours of operation, remove gear box and drain gear oil. Refill gear box with 140-Weight SAE Gear Oil or a high quality worm gear lubricant. Replace pipe plug and tighten to 20 foot-pounds (27 N-m) of torque.

Six months or 2500 Operating Hours – Replace gear oil according to instructions above. Replace gear oil more often if environment causes oil to become contaminated during use.

REPLACEMENT OF PARTS

Removal of Air Motor and Gear Box (refer to figure 1, page 5 – typical assembly.)

1. Turn off valve to main air supply and disconnect air adjusting valve (24) at nipple (25).
2. Loosen cap screw (22) and remove air motor and gear box assembly from coupling adapter (23).

Air Motor (refer to figure 2, page 6)

Holes must be drilled for new dowel pins (39) after assembling front plate (44) on new body (43) for alignment of parts.

Do not pry front plate (44) or end plate (38) from air motor body (43) with a screw driver; this will dent the surface of the body and plates causing leaks. A puller tool should be used to remove the plate from the motor body while maintaining the position of the shaft.

Always install new gaskets (40) when reassembling air motor.

Assemble the end plates to the body using an arbor press with a pusher acting on both races of the bearing while rigidly supporting the opposite (drive) end of the shaft.

(continued on page 4)

OPERATION AND MAINTENANCE

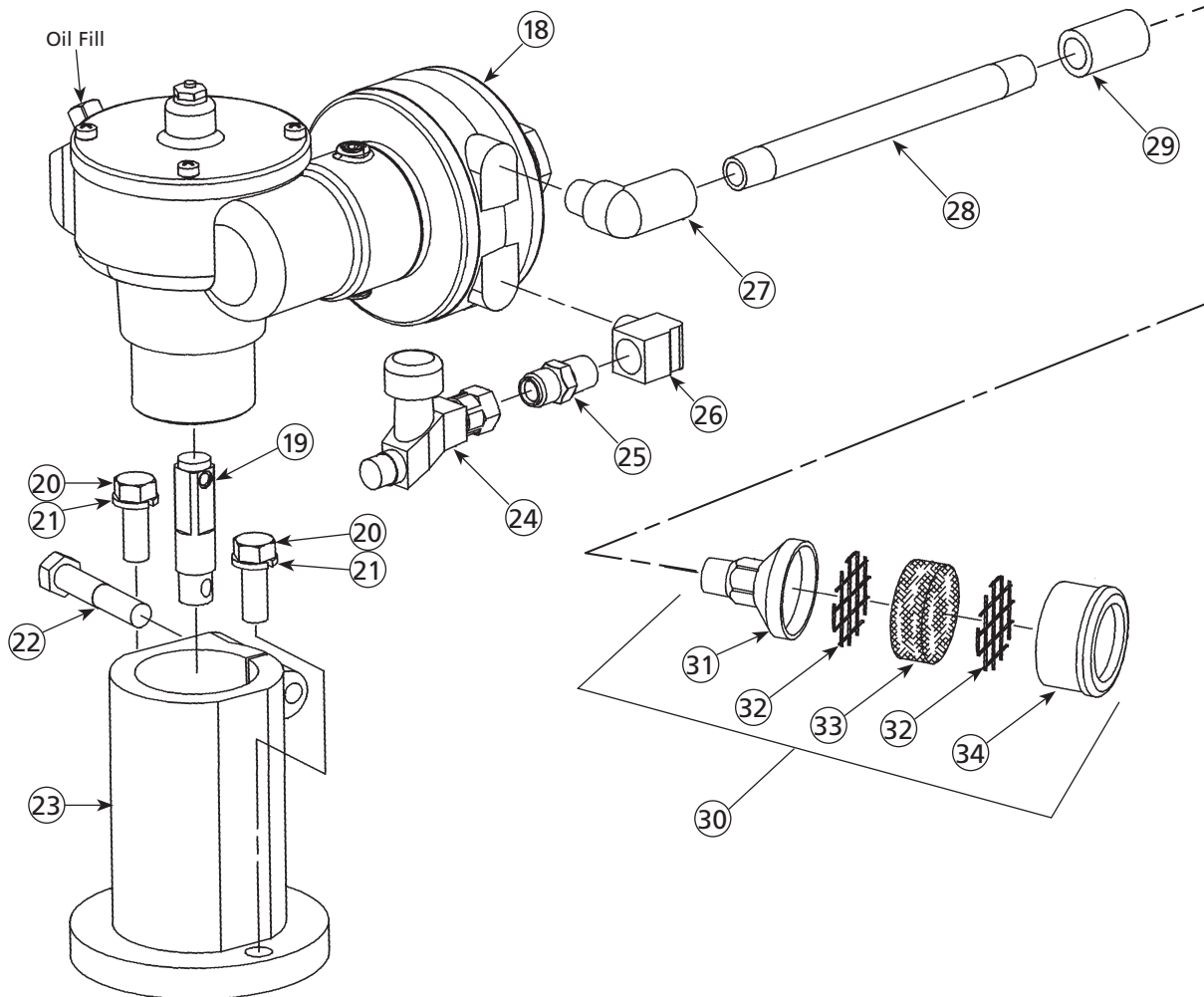
Gear Box (refer fo figure 3, page 7)

1. Remove oil fill plug (55) or cover plate (51) and drain gear box lubricant.
2. Remove set screws (58) and remove gear box from air motor.
3. Disassembly gear box per exploded view, Figure 3. Discard gaskets (54 and 59). Do not remove oil seal (57) unless leakage or seal damage is indicated.
4. If oil seal (57) was removed, inspect seal seating bore in housing (56). Remove any burrs or contaminants from seal seating bore. Burrs or contaminants could distort new oil seal during installation.
5. Inspect gear and shaft assembly (53) for wear grooves, burrs, or contamination of seal seating area. If seal seating area is damaged, shaft must be repaired or replaced.
6. Inspect all other parts for wear spots, chipping, or other damage. Replace damaged or worn parts.
7. If oil seal (57) is being replaced, inspect new seal for damage before installing. Use arbor press to install seal. Press fixture diameter must be close fit with gear box bore diameter to avoid damage to seal. Install with inner casing and sealing lip toward bottom of bore. Drive seal squarely into bore to avoid warping. Oil seal is recessed 3/32 inch from bottom of housing (56) when properly installed.
8. Reassemble gear box per exploded view. Install new gaskets (54 and 59). Just prior to assembling gear box with air motor, apply a small dab of thread locking compound (48) to threads of set screws (58). Connect motor and gear box and torque set screws (58) to 60 inch-pounds (6.8 N-m), minimum. Refill gear box per gear box lubrication instructions.

AIR MOTOR DRIVE SERVICE CHECKS

CONDITION	CAUSE	CORRECTION
Air motor sluggish or inefficient	<ol style="list-style-type: none"> 1. Air motor needs lubrication or cleaning. 2. Motor vanes need replacing or contaminants present in motor chamber, Figure 2. 3. Low oil level in gear box, Figure 3. 4. Gear and shaft assembly (53) and/or worm gear (60) worn, Figure 3. 5. Air motor bearing (36 or 46) worn, Figure 2. 	<ol style="list-style-type: none"> 1. Lubricate (see "Air Motor Lubrication" section). Disassemble and clean per parts replacement instructions. 2. Disassemble, clean motor per parts replacement instructions. Replace worn vanes. 3. Add oil per lubrication instructions. 4. Replace worn parts per parts replacement instructions. 5. Replace bearings per parts replacement instructions.
Oil leakage from gear box.	<ol style="list-style-type: none"> 1. Seal (57, Figure 3) worn. 	<ol style="list-style-type: none"> 1. Replace seal per parts replacement instructions.

FIGURE 1 — 31-393 GEAR DRIVE WITH AIR MOTOR



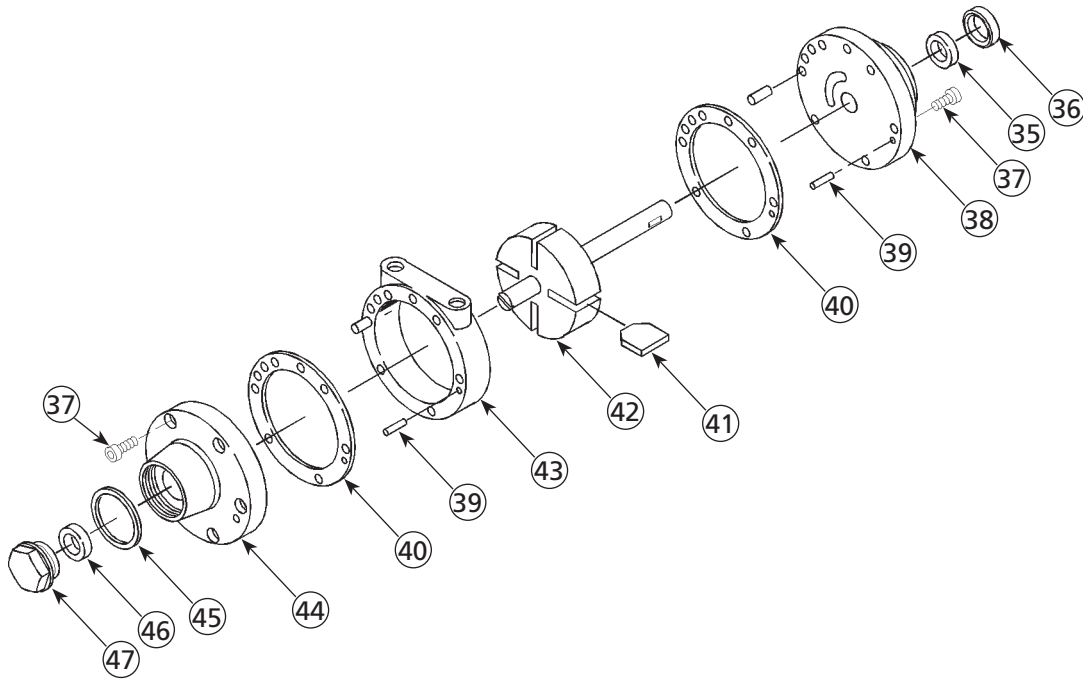
PARTS LIST

When ordering, please specify Part No.

ITEM NO.	PART NO.	DESCRIPTION	QTY.	ITEM NO.	PART NO.	DESCRIPTION	QTY.
18	31-391	GEAR REDUCER/..... AIR MOTOR DRIVE UNIT	1	27	Purchase Locally	STREET ELBOW 1/4 NPT	1
19	31-398	DRIVE SHAFT ASSEMBLY	1	28	Purchase Locally	NIPPLE 1/4 NPT x 6" long	1
20	Purchase Locally	HEX HEAD CAP SCREW	2	29	Purchase Locally	COUPLING 1/4 NPT	1
21	Purchase Locally	LOCK WASHER 3/8" (plated).....	2	30	350-401	AIR STRAINER.....	1
22	Purchase Locally	HEX HEAD SCREW	1	31	—	STRAINER BODY.....	1
23	31-395	COUPLING ADAPTER	1	32+	—	SCREEN	1
24	HAV-500	AIR ADJUSTING VALVE	1	33+	—	FELT.....	1
25	H-2008	ADAPTER 1/4 NPT x 1/4 NPS	1	34	—	STRAINER CAP.....	1
26	Purchase Locally	STREET ELBOW 1/4 NPT	1				

• Included in KK-5001-1 Air Motor Repair Kit. See page 6 for additional parts included in this kit.
+ Item No. 32 (2 ea.) and Item No. 33 (4 ea.) included in KK-5006 Strainer Screen and Felt Kit.

FIGURE 2 — QS-4016 AIR MOTOR



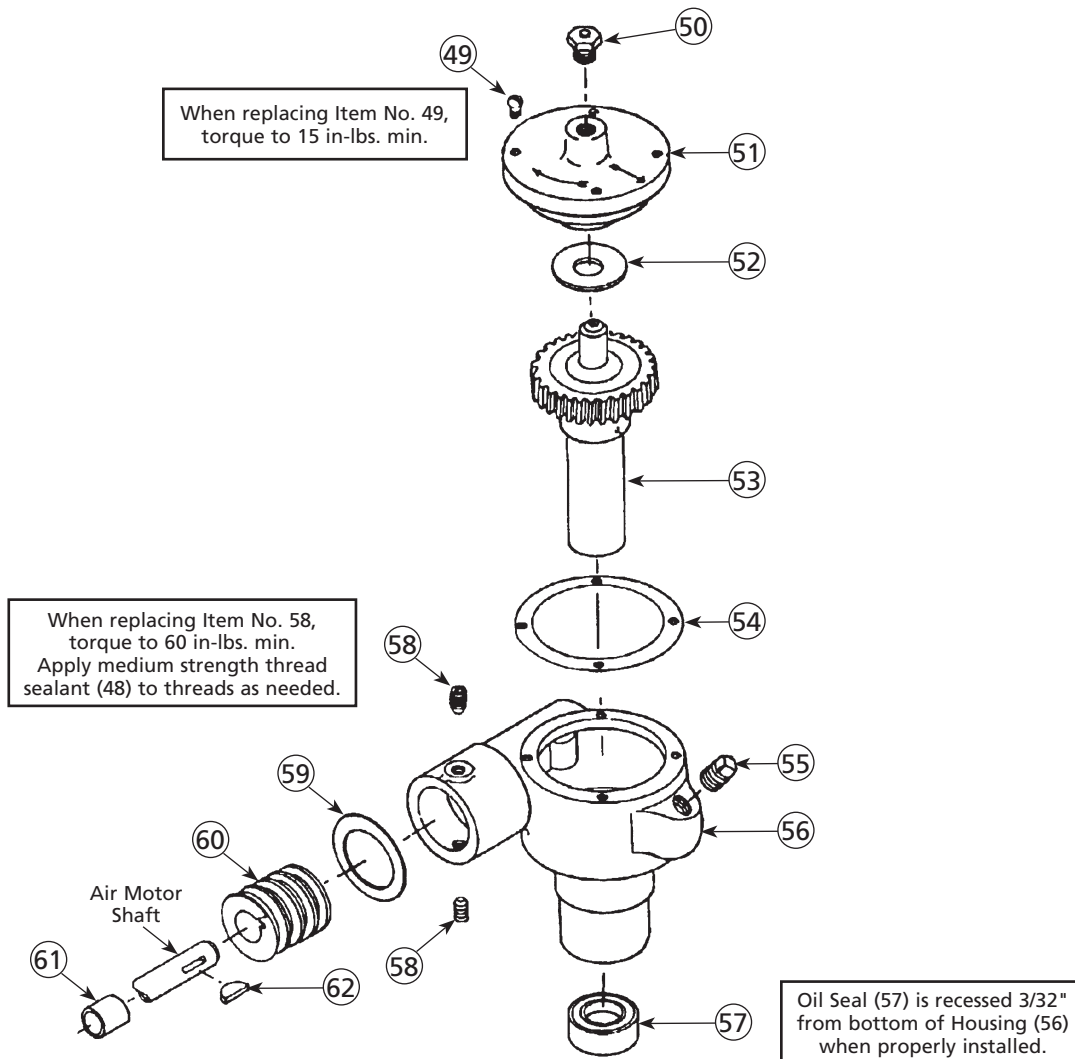
PARTS LIST

When ordering, please specify Part No.

ITEM NO.	PART NO.	DESCRIPTION	QTY.	ITEM NO.	PART NO.	DESCRIPTION	QTY.
35	QS-336	OIL SEAL.....	1	42	QS-442	ROTOR AND SHAFT ASSEMBLY	1
36	QS-197	BEARING.....	1	43	QS-335	BODY	1
37	Purchase Locally	MACHINE SCREW, 1/4-28 x 1/2	12	44	QS-333	FRONT PLATE	1
38	QS-334	END PLATE	1	45•	---	END CAP GASKET	1
39	QS-189-1-K10	DOWEL PIN (Kit of 10)	4	46	PT-58	BEARING.....	1
40•	PT-59-1-K10	END PLATE SPACER KIT (Kit of 10)..	2	47	QS-190	END CAP.....	1
41•	---	VANE	4				

• Parts available in KK-5001-1 Air Motor Repair Kit.

FIGURE 3 — GEAR BOX ASSEMBLY



PARTS LIST

When ordering, please specify Part No.

ITEM NO.	PART NO.	DESCRIPTION	QTY.	ITEM NO.	PART NO.	DESCRIPTION	QTY.
48	---	THREAD LOCKING COMPOUND..... (not shown)		55	Purchase Locally	PIPE PLUG, 1/4" Galvanized	1
49•	---	FILLISTER HEAD MACHINE SCREW ... 10-24 x 5/8"	4	56	QS-36-1	HOUSING	1
50	QS-108	PRESSURE RELIEF FITTING.....	1	57•	---	OIL SEAL	1
51	QS-37-1	COVER PLATE	1	58•	---	CUP POINT SETSCREW, 5/16-18 x 3/8" ...	2
52•	---	WASHER	1	59•	---	GASKET	1
53	QS-416-1	GEAR AND SHAFT ASSEMBLY	1	60	QS-59	WORM GEAR.....	1
54•	---	GASKET	1	61•	---	SPACER	1
				62•	---	KEY, No. 5, 5/8" x 1/8"	1

• Parts included in KK-5010 Gear Box Kit.

WARRANTY

This product is covered by Binks' 1 Year Limited Warranty.

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BINKS

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